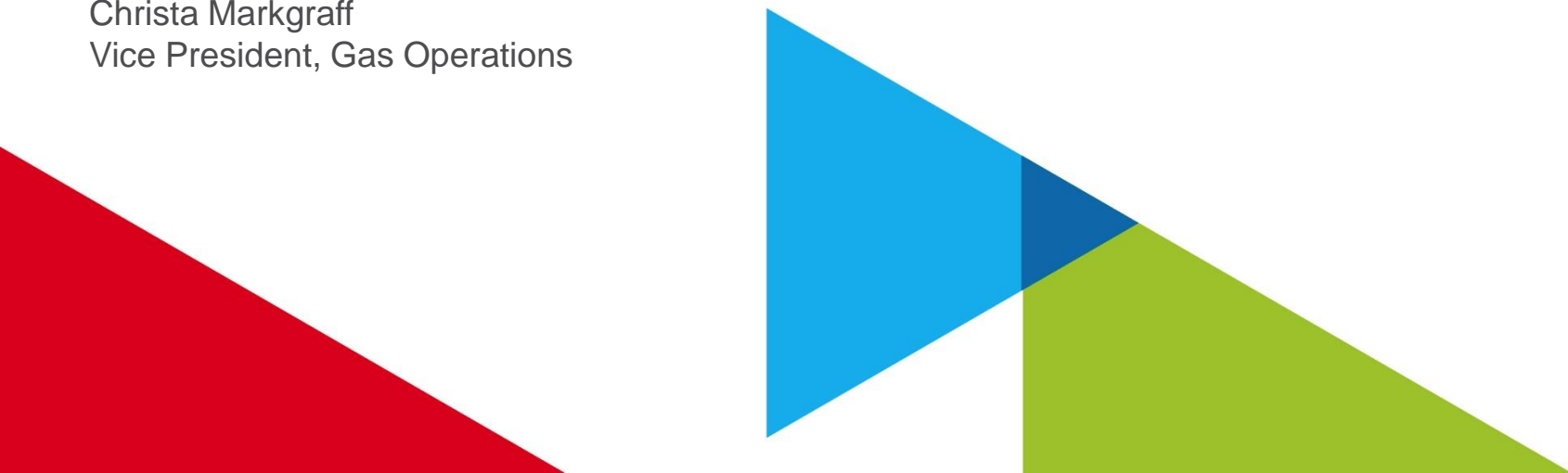




# Enabling a Resilient Low-Carbon Energy Future: Energy Delivery, Storage, and Energy Reliability

ICC Energy Storage Workshop  
January 20, 2022

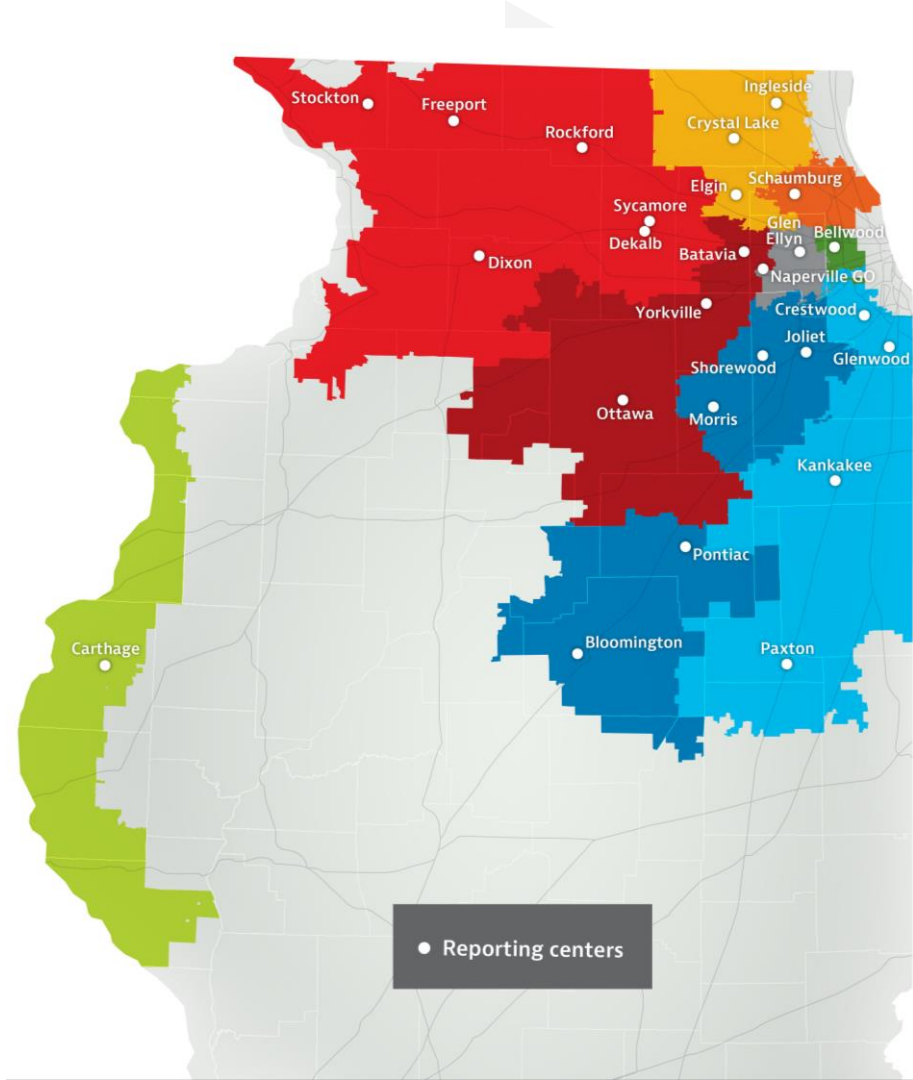
Christa Markgraff  
Vice President, Gas Operations



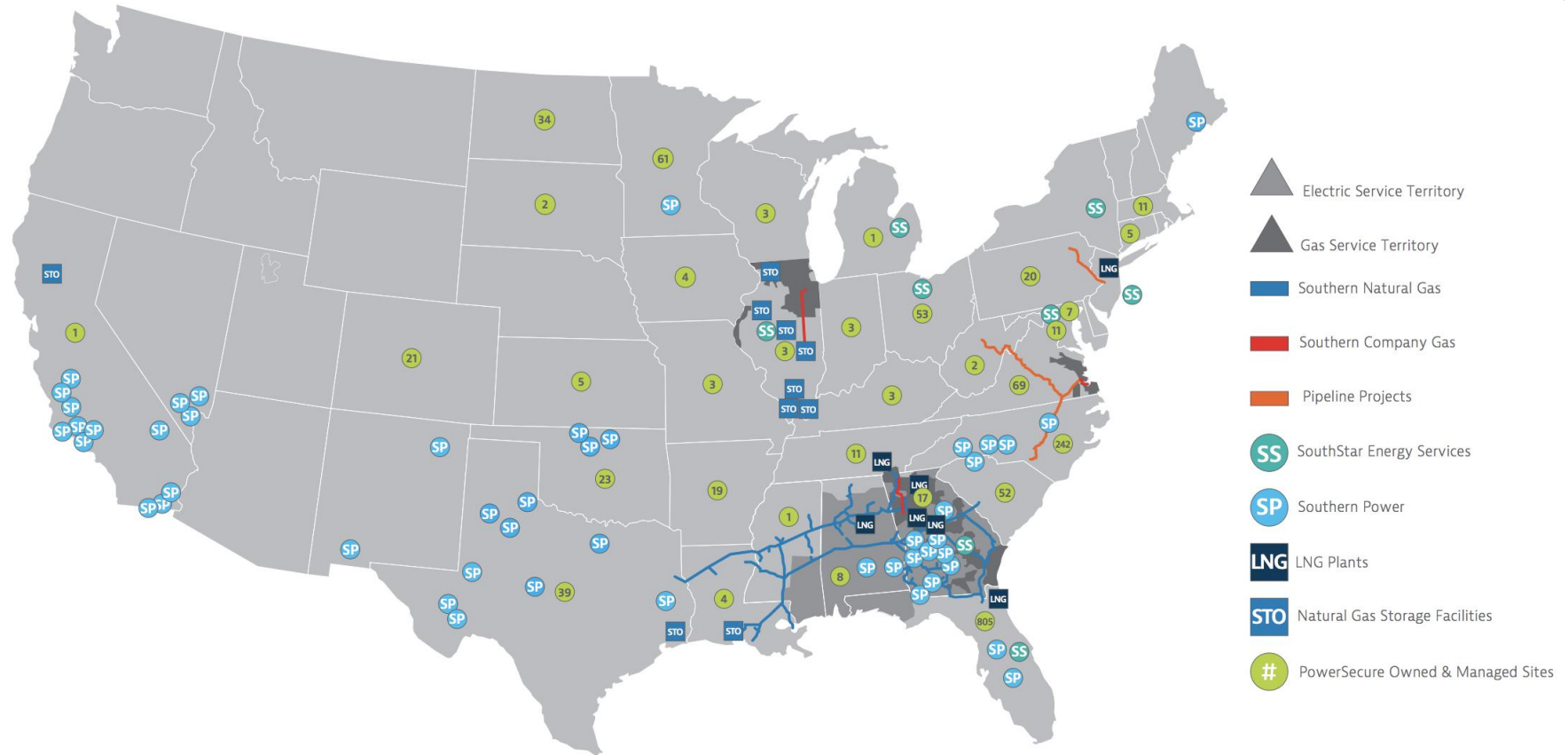
# Nicor Gas

Nicor Gas is Illinois' largest natural gas distributor, and owner and operator of one of the largest natural gas aquifer storage systems in North America.

- **Headquartered in Naperville, IL**
- **2,000 employees**
- **656 communities served**
- **2.2+ million customers**
- **17,000 square miles of service area**
- **35 reporting centers**
- **2,345 fleet vehicles (on and off road)**
- **8 storage fields – our maximum storage cyclable capacity is 150bcf and we typically cycle 135bcf each year**
- **34,000 miles of pipe**



# Southern Company System



# We are taking action to drive sustainability.



Nicor Gas has a goal of **net zero methane emissions by 2030**, and we are taking action **across the value chain**.

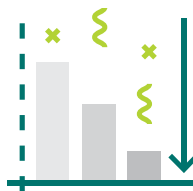
TO SUPPORT ECONOMY-WIDE EMISSION REDUCTION EFFORTS, WE ARE EVALUATING OPPORTUNITIES TO:

## DID YOU KNOW?

Through our energy efficiency programs, customers have saved more than 168 million therms with CO2 emissions reduced by more than 893,000 metric tons



UPSTREAM



DOWNSTREAM



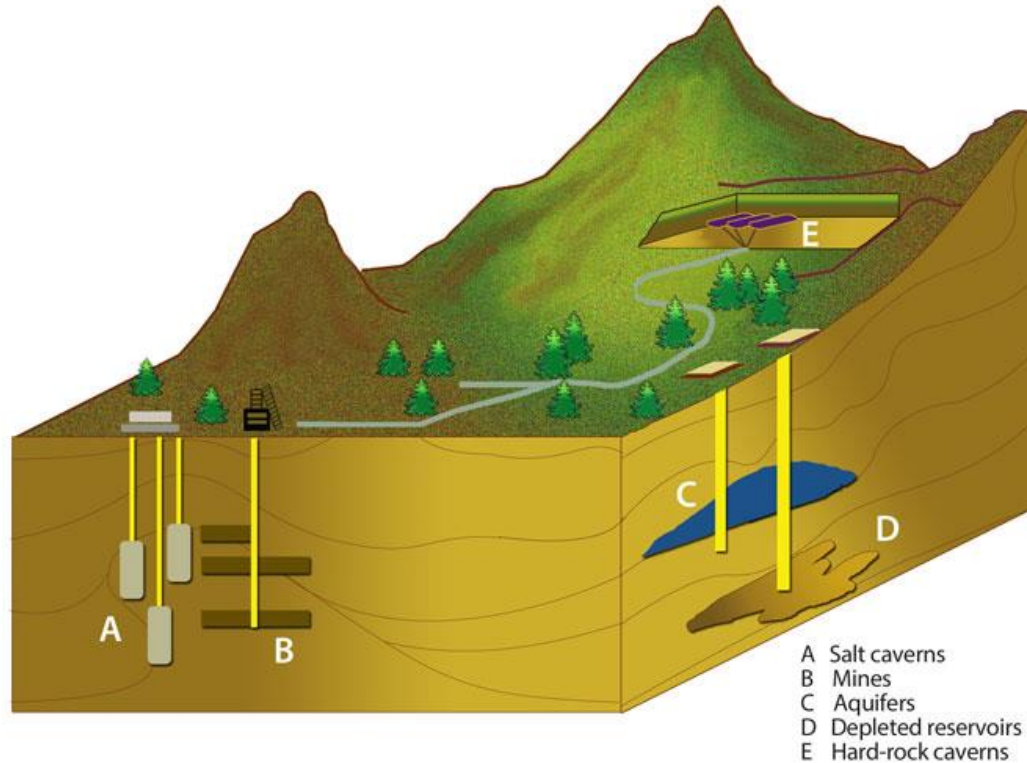
Leverage existing infrastructure for new, lower carbon sources of gas

Continue reducing operational emissions

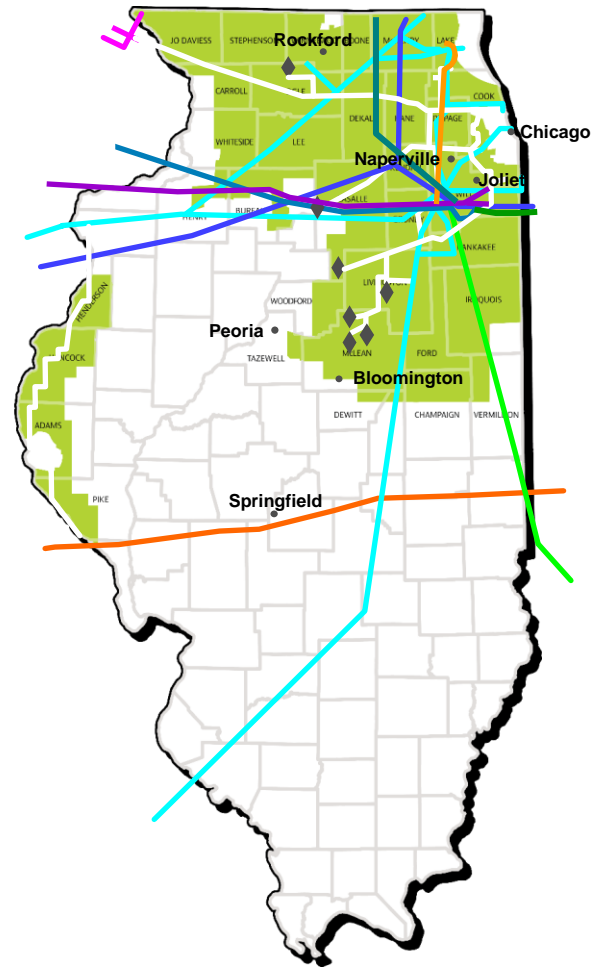
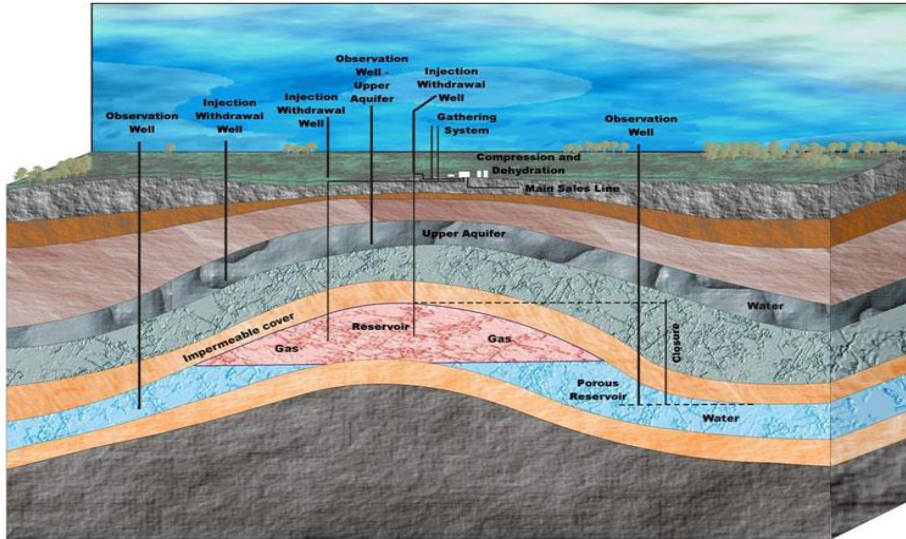
Decrease customer emissions via green gas programs and increased efficiency and other technologies

# Our Storage Experience

Types of underground natural gas storage facilities



# Nicor Gas Underground Natural Gas Storage



◆ Storage Field

# Nicor Gas Underground Natural Gas Storage



- Nicor Gas operates eight underground natural gas storage facilities to help meet winter heating loads
- **Total capacity of about 135 billion cubic feet (bcf) or energy equivalent of 40 billion kWh**
- 60 Years of Operating History



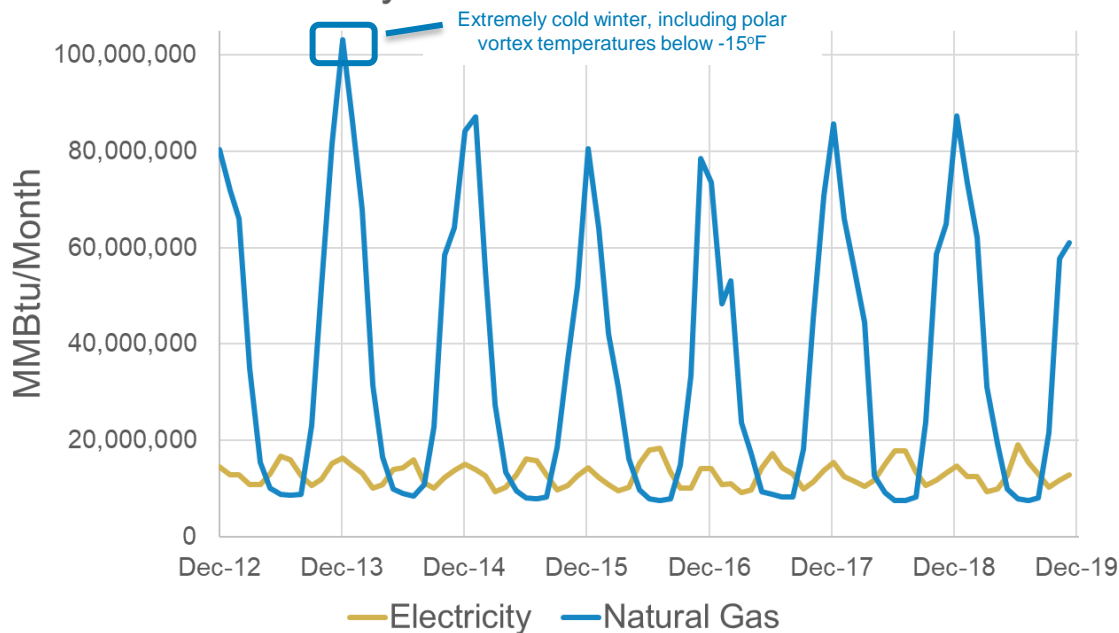


# Illinois Monthly Residential Energy Use

## Severe Winter Natural Gas Peaks



State of Illinois  
Monthly Residential Energy Use

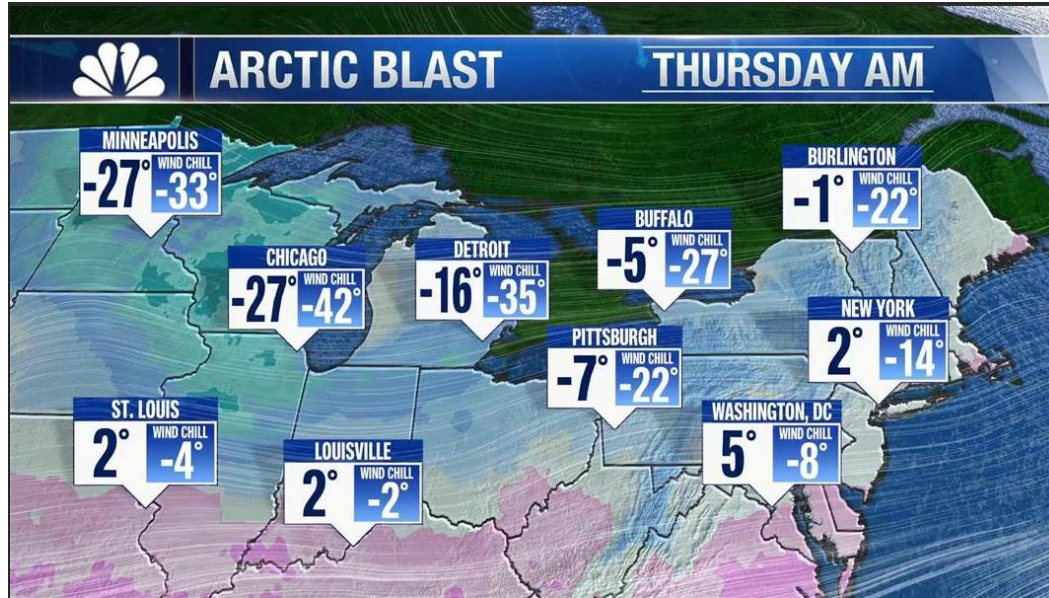


In Illinois, residential natural gas monthly peak (in January) is more than 5 times greater than the electricity monthly peak (in July or August).

Intense seasonal space heating energy use met through natural gas production plus **massive amounts of natural gas withdrawn from storage systems over several months (November through April for Nicor customers)**

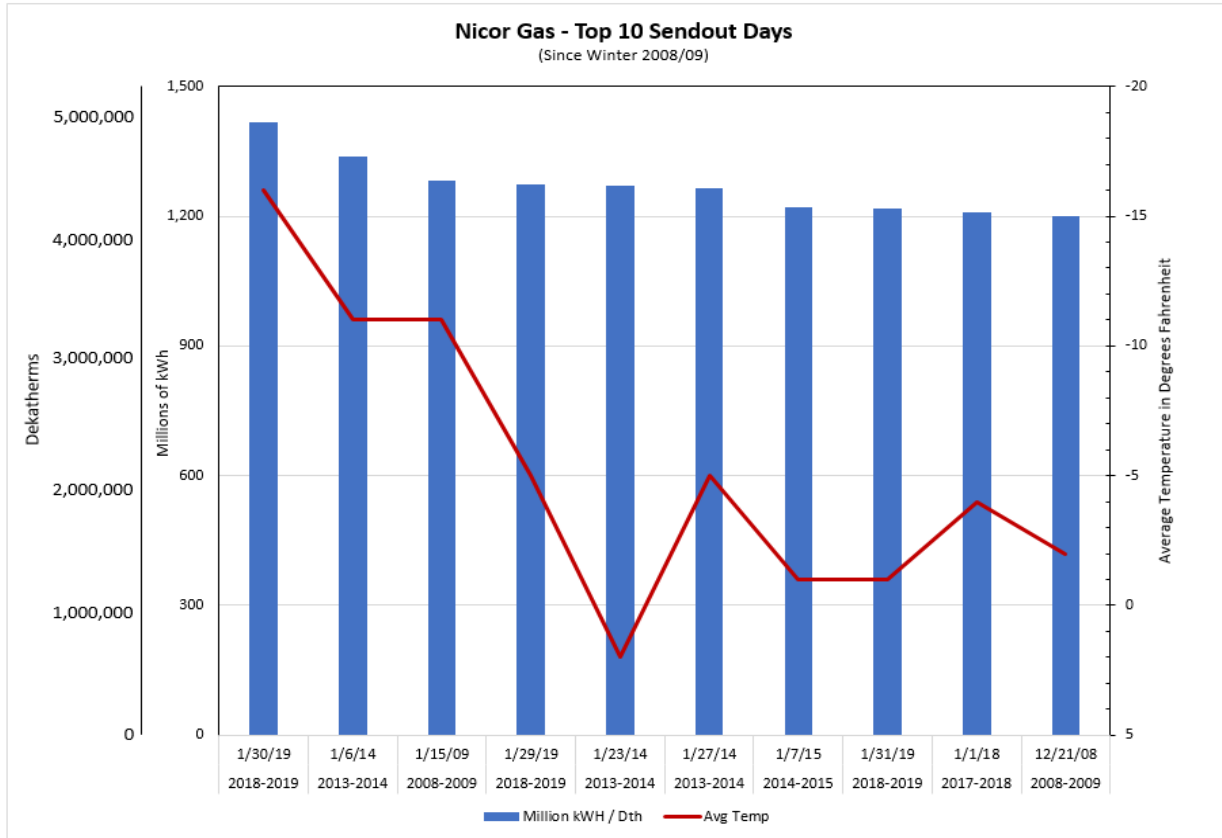


# Polar Vortex (Jan 30/31, 2019)



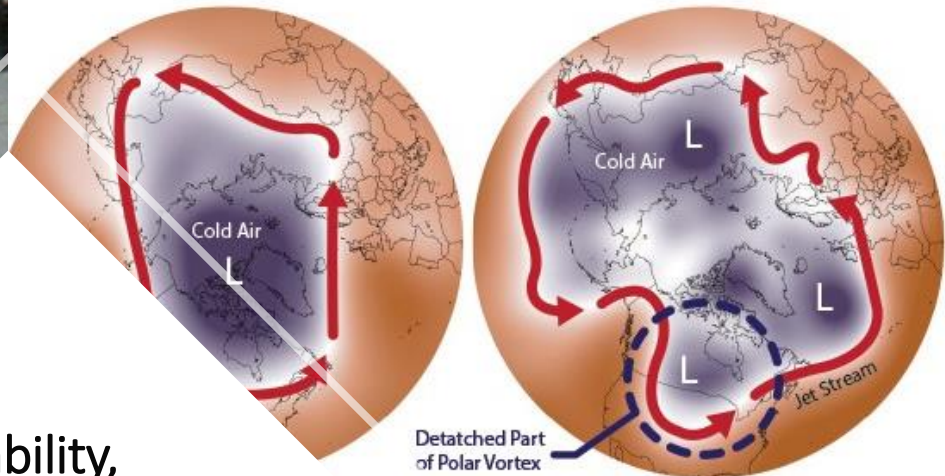
- 2 Days
- -18 degree high and -32 degree low
- 8.9 Bcf gas delivered over 2 days (4.8Bcf record 1-day delivery on 1/30/19)
- Nicor Gas withdrew 3.1 BCF from storage over two-day period (equal to 912 million kWh)
- All Nicor Gas customers were served with no curtailments

# Nicor Gas – Top 10 Send-Out Days





Reliability,  
Resiliency  
and Safety

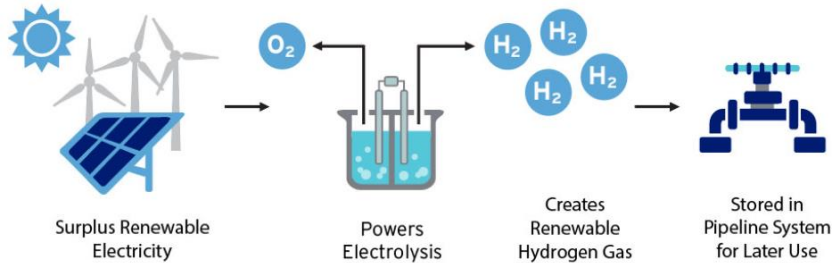


January 5, 2014

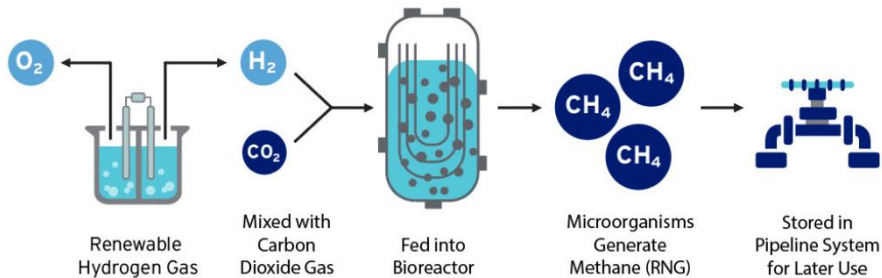


# Potential Future of Natural Gas Delivery

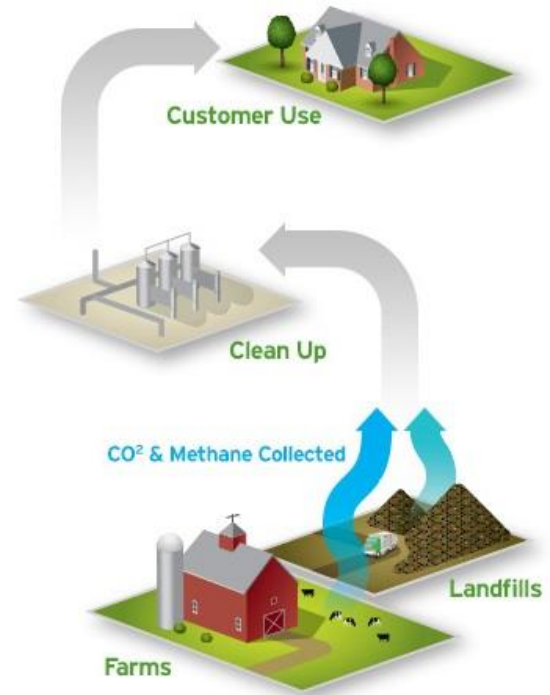
## Clean Hydrogen: Electrolysis



## P2G: Hydrogen with Methanation



## Renewable Natural Gas





# Renewable Natural Gas (RNG)



Renewable natural gas turns waste into renewable energy



Wastewater Treatment Plants



Municipal Solid Waste



Wood and Agricultural Residues



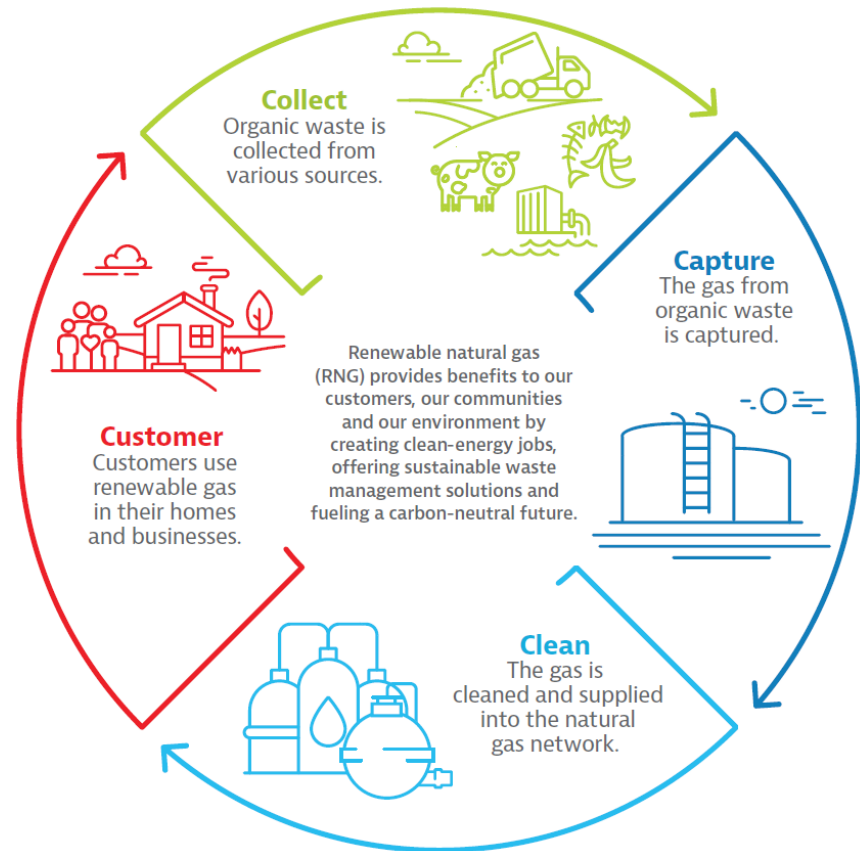
Swine



Dairies



Landfills



# Renewable Gas Interconnection Pilot



**RNG projects have the potential to create a variety of economic benefits to the State of Illinois through local temporary and permanent jobs and transforming the cost of disposing waste into a local asset.**

- The construction of RNG facilities require expertise in site work, plumbing, electrical, permitting and concrete that can provide work for many different local contractors and industries.
- The RGI Pilot is a limited pilot program that is available to any renewable natural gas (RNG) producer on a first-come, first-served basis to any party who enters into a Renewable Gas Interconnection Service Agreement with Nicor Gas for an interconnection to deliver renewable gas through the company's distribution system to our customers.
- Projects participating in this Pilot will be eligible to receive an Interconnection Allowance. The Interconnection Allowance will reduce or offset the total capital investment of the Interconnection Facilities owned by Nicor Gas. The total investment cap for the Pilot is \$16 million with a \$3.2 million per-project limit.

